



US009409711B1

(12) **United States Patent**  
**Hanssen et al.**

(10) **Patent No.:** **US 9,409,711 B1**  
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **SEMI-AUTOMATED INVENTORY TRANSFER  
STATION OUTPUT MERGE LOGIC**

(56) **References Cited**

U.S. PATENT DOCUMENTS

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(US)

8,086,345	B2	12/2011	Emery et al.
8,280,547	B2	10/2012	D'Andrea et al.
8,855,806	B2	10/2014	Rotella et al.
8,892,240	B1	11/2014	Kiser et al.
8,952,284	B1	2/2015	Young et al.
9,009,072	B2 *	4/2015	Mountz ..... G06Q 10/08 705/28

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9,014,844	B2	4/2015	Morgan et al.
9,315,323	B2	4/2016	Schubilske
2009/0000912	A1	1/2009	Battles et al.
2009/0299521	A1 *	12/2009	Hansl ..... B65G 1/1378 700/215
2012/0143427	A1	6/2012	Hoffman et al.
2013/0302132	A1	11/2013	D'Andrea et al.
2014/0100999	A1	4/2014	Mountz et al.
2014/0178161	A1	6/2014	Moosburger et al.
2016/0009493	A1	1/2016	Stevens
2016/0101940	A1	4/2016	Grinnell et al.
2016/0107838	A1	4/2016	Swinkels et al.

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(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

OTHER PUBLICATIONS

U.S. Appl. No. 14/723,375, filed May 27, 2015, Titled: Semi-Auto-  
mated Inventory Transfer Station.

\* cited by examiner

(21) Appl. No.: **14/723,386**

(22) Filed: **May 27, 2015**

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(51) **Int. Cl.**  
**G06F 7/00** (2006.01)  
**B65G 1/137** (2006.01)  
**B65G 1/00** (2006.01)  
**B65G 37/00** (2006.01)  
**B65G 3/00** (2006.01)  
**B65B 35/00** (2006.01)  
**B65B 65/00** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **B65G 1/1378** (2013.01); **B65B 35/00**  
(2013.01); **B65B 65/00** (2013.01); **B65G 1/00**  
(2013.01); **B65G 3/00** (2013.01); **B65G 37/00**  
(2013.01)

(58) **Field of Classification Search**  
None

See application file for complete search history.

(57) **ABSTRACT**

An inventory transfer station is provided in connection with a  
workspace of an inventory management system. At the inven-  
tory transfer station, items are transferred from container  
holders to empty containers thereby generating containers  
that may fulfill orders for items. The inventory transfer station  
may be semi-automatically configured to transfer items from  
the container holders to the empty containers utilizing a ver-  
tical reciprocating conveyor that feeds empty containers to  
the inventory transfer station via an inbound conveyor lane  
associated with the inventory management system. Contain-  
ers that have received items from the container holder may be  
transferred to an outbound conveyor lane that may, via the  
vertical reciprocating conveyor, feed fulfilled containers to a  
shipping area of the workspace.

**20 Claims, 12 Drawing Sheets**

